The intersection of the two circles of figures serves the purpose of giving day hours inside and night hours outside.

NOTES

THE Congress of the United States some time ago appointed a joint committee of senators and representatives to consider the organisation of the different bureaux of the Government. This special commission is now hearing the depositions of witnesses. The evidence of Major Powell, Director of the Geological Survey, has just been published. The principal feature of this document is the proposal to give the administration of the different bureaux to the Smithsonian Institution. It should be noted that the National Academy of Sciences passed some time back a resolution asking that a special administration should be created for the purpose. The Committee of the Academy recommended the establishment of a physical observatory to investigate the laws of solar and terrestrial radiation, and their application to meteorology, with such other investigations in exact science as the Government might assign to it; and they also recommended that the functions of the Bureau of Weights and Measures, now performed by the Coast Survey, be extended so as to include electrical measures.

THE Bureau of Navigation of the U.S. Navy Department announces that the computations and discussions of the observations and experiments for determining the velocity of light have been completed, and are being prepared for publication.

THE Fourth Circular of Information of the United States Bureau of Education reports the meeting of the Superintendents of National Education at Washington in February last, one of the largest of such meetings ever held. The principal papers read were on the subjects of Indian and Negro education. One speaker, who reported the former of these races to trust too much to memory and direct observation and too little to reasoning, nevertheless considered them worthy to be absorbed into the white population, though as an inferior element. This may be the best for the Indians, for the most hopeful view of another speaker who upheld the return of their educated youth to their old homes as a civilising power to the whole body, was that "not more than five out of thirty were given up as hopeless"! But as eminently qualified and well-paid men are required for even this result, and nature will probably protest strongly against the deterioration of a higher race by a lower one, the most satisfactory consideration seems that the Indian population is decreasing. But not so the Negro; and the inability of the Southern States to overcome the rapidly increasing mass of ignorance now cast upon them has led to the drawing up of a very cautious Act for the supply of national assistance to this necessary work during the next five years only. It is interesting to note that the Peabody Trustees are becoming quite an authority in educational matters. Another subject fully discussed, but, like the above, requiring little discussion in our country, was the advantage or disadvantage of a ten minutes recess during a three hours' school sitting; the objections to it, some of them social, would not be felt here. Out of our reach also, we fear, is the pleasanter matter of the plantation of trees as memorials of each great man or event at an annual school holiday. An interesting account given of the composition of those touching lines, "Woodman, spare that tree," concluded an eloquent paper on behalf of the practice. In an account of European technical education a very high place is awarded to the Swedes, who want nothing but qualified teachers. While one speaker urged that technical training should be the groundwork of education, and not a branch of fact-knowledge, another thought, that looking on at various manufactories and writing an account of what had been shown and explained to them, was of more general value. The immense increase of crime in the United States among educated young men was cited by one who expressed an enthusiastic belief that the greatest check to it would be the organisation among children of societies for the prevention of cruelty to animals. Dr. B. Joy Jeffries read a paper on colour-blindness, urging that the three primaries are red, green, and violet; that blindness to the latter is so rare that practically colour-blindness means blindness to red or green; urging also the danger of persons with such deficiency being employed in many occupations, and the necessity of an experimental method of finding it out. The Fifth Circular of Information consists of information and suggestions with regard to the great educational department of the New Orleans Exposition now opening, at which gathering the Superintendents of Education are to meet in the ensuing year.

HERR JADRINTSOW of St. Petersburg is about to publish, in Russian and German, a work on the Uralo-Altai, and Ugro-Turanian tribes of Siberia.

ACCORDING to the *Colonial Mail* a statement comes from the Cape Colony which is deserving the attention of botanists. It is alleged that insects shun the land on which tomatoes are grown; and the cultivation of the *Lycopersicon esculentum* is accordingly recommended in all cases where it is possible to grow it—under fruit-trees, for instance, since the tomato will thrive in the shade of other trees, which few other plants will do—for the sake of the virtues attributed to it as a prophylactic against the inroads of insect pests. It would be interesting to know whether the tomato has been observed to exercise any such effect on insects elsewhere—in Canada, for instance, where the fruit is so popular—or whether it is only in warmer climates, like that of the Cape, that its peculiar powers are brought into play.

M. MARCEI DEPREZ, the well-known electrician, is not confining his labours exclusively to the transmission of electrical force to distant places. In conjunction with others he has patented a new telephone based on a new principle of vibration, and dispensing with the use of voltaic elements. The lease of the Compagnie générale des Téléphones being about to expire, the Municipal Council of Paris have held a protracted sitting on the question whether the lease should be renewed or not. In the course of the discussion it was proposed to grant the renewal of the lease provisionally for a month, in order to give the new apparatus a fair trial. The further discussion of the question has been postponed to the next meeting.

THE last number of the *Mittheilungen der deutschen Gesellschaft für Natur und Völkerkunde Ostasiens*, Heft 31, contains a paper by Mr. Knipping, on weather telegraphy in Japan, which has already been referred to in NATURE. Besides describing the agencies at present at work in connection with the Central Meteorological Observatory, Mr. Knipping suggests a reorganisation of service, especially as regards the lighthouses; the number of stations would then be eighty in place of twenty-four, and the increased value of the service for practical as well as for scientific climatological purposes would be proportionate. Herr Mayet gives the first part of a full and interesting description of his visit to Corea with the German mission which went there last year for the purpose of making a treaty. If continued on the same scale, it will be the most comprehensive and accurate account of Corea, its Government, people, laws, &c., yet published. When at the capital, Seoul, the members of the mission noticed, from a hill in the grounds of their residence, the extraordinary sunsets of October in that year; but no special observations were made, because they believed that the beautiful phenomenon was the usual accompaniment of fine weather sunsets in Corea. It is described as sometimes resembling the aurora borealis. Frequently it was

only a uniform brilliant brightness, the centre of which was the spot at which the sun had gone down; other evenings the sun shot rays like long fingers, of a darker colour, athwart the glow, and in one evening the change of the light and darker colours of the evening red were like the incessant wavings of the folds of a perpendicular curtain. The effect of the phenomenon on the ignorant and superstitious inhabitants of Seoul, was of more immediate importance to the writer and his companions than its scientific aspects. They regarded it as a sign of trouble, war, and misfortune. Heavy rain which fell soon after averted any disaster from this cause.

A COMMISSION has been nominated by the President of the French Republic to investigate the archæology of Tunis, and report on the best method of preserving the ancient monuments of that country. A considerable number of specially-qualified French scholars have been appointed, and M. Ernest Renan has been named President of the Commission.

A SARCOPHAGUS with four face-urns has been recently found at Garzigar, near Köslin (Pomerania), and has been sent to the Antiquarian Provincial Museum of the Pomeranian Antiquarian Society at Stettin. A similar discovery was made last year at Klein Barkow (another Pomeranian village). Round one of the urns there was placed a bronze necklace, consisting of a stout bronze wire supporting eight so-called spectacle-spirals as ornaments. Prof. Berndt has proved in his work on Pomeranian face-urns, that they are really of Greek origin, dating from about the years 100 or 200 B.C., when Greek agents or factors went to live on the shores of the Baltic in order to trade with their home country in amber, furs, &c. Prof. Lindenschmidt (Mayence) and Dr. Schliemann indorse this opinion.

THE Imperial Japanese Meteorological Observatory has (according to the *Japan Mail*) issued a volume containing a series of monthly weather summaries for the months March to December 1883, each summary being accompanied by a map. The first weather map in Japan was issued on March 1, 1883, and the compilation therefore begins with that month. The greater part of the issue is occupied by twenty maps, indicating the tracks of centres of areas respectively of high and low barometers for the ten months dealt with, copious notes prepared from the daily telegrams being also furnished. For each month there is given the number of areas of high and of low barometer, with a short synopsis of the course of each, the place and date of highest and lowest temperature and barometric pressure, the number of gales, heavy gales, and hurricanes reported, with their localities, the occasions on which rain or snow fell, and the number of warnings issued. Lists are also given of the light-houses from which gales were reported. These summaries are followed by monthly meteorological tables and illustrative maps, commencing two months earlier, and extending therefore over the whole of the year 1883. In these we find the mean temperature, mean pressure, altitude and rainfall for each month at twenty-two stations, and at the end there is a similarly prepared table for the whole year. The series closes with maps indicating by different degrees of shading the rainfall over the various parts of the empire during the twelve months, the aggregate rainfall for the year being shown by similar means in a final map.

AT the meeting of the Royal Physical Society of Edinburgh, held on December 17, the following office-bearers were elected:—Presidents: Benjamin N. Peach, F.R.S.E., John A. Harvie-Brown, F.R.S.E., Rev. Prof. John Duns, F.R.S.E.; Secretary: Robert Gray, V.P.R.S.E.; Assistant Secretary: John Gibson; Treasurer: Charles Prentice, F.R.S.E.; Hon. Librarian: R. Sydney Marsden, F.R.S.E.; Council: Patrick Geddes, F.R.S.E., Frank E. Beddard, F.R.S.E., Johnson Symington, F.R.C.S.E., Andrew Moffat, John Hunter, F.C.S., Robert Kidston, F.G.S., A. B. Herbert, William Evans Hoyle, M.R.C.S., F.R.S.E., Prof. James Geikie, F.R.S., Prof. J. Cossar Ewart, F.R.S.E., G. Sims Woodhead, F.R.C.P.E., Hugh Miller, F.G.S.

WE have received the October number of the *Proceedings* of the Boston Society of Natural History. It contains a continuation of Mr. Crosby's paper, meeting the objections advanced by Dr. Wadsworth against the author's views of the stratigraphy of the Boston Basin. It also contains a description, by Q. E. Dickerman and Dr. M. E. Wadsworth, of an olivine-bearing diabase, from St. George, Maine; as also the beginning of a paper by Thos. T. Bouvé, on the genesis of the Boston Basin and its rock-formation.

MESSRS. MACMILLAN AND CO. will very shortly publish a translation of the work of Dr. Hertel of Copenhagen on Over-Pressure in Middle-Class Schools in Denmark, with an introduction by Dr. Crichton Browne.

THE additions to the Zoological Society's Gardens during the past week include an Indian Civet (*Viverricula malaccensis*) from India, presented by Mr. W. Getty; a Bengalese Cat (*Felis bengalensis*) from India, presented by Mr. G. T. Egan; a Grey Parrot (*Psittacus erithacus*) from West Africa, presented by Mrs. Whitelow; a Kestrel (*Tinnunculus alaudarius*), a Sparrow Hawk (*Accipiter nisus*), British, presented by Mr. T. E. Gunn; a Broad-fronted Crocodile (*Crocodilus frontatus*), a Nilotic Crocodile (*Crocodilus vulgaris*) from West Africa, presented by Mr. J. M. Harris; an Undulated Grass Parrakeet (*Melopsittacus undulatus*) from Australia, deposited; two Golden-winged Woodpeckers (*Colaptes auratus*), a Blue Jay (*Cyanocitta cristata*) from North America, a Black-tailed Hawfinch (*Coccothraustes melanurus*) from Japan, two Red-headed Finches (*Amadina erythrocephala*) from South Africa, two Banded Parrakeets (*Palæornis fasciatus*), from India, received in exchange.

PHYSICAL NOTES

SEVERAL new primary batteries are in the field, and there are more to come. An iron cell invented by Dr. Pabst of Stettin is finding great favour in Germany. Its electrodes are carbon and wrought iron dipping into a solution of ferric chloride. It is practically unpolarisable and self-regenerating. It works at the expense of iron and of the oxygen of the air, which is absorbed into the liquid, whilst ferric oxide is deposited at the bottom of the cell. Its electromotive force is about ·78 of a volt. The Pabst cell ought to prove of value for domestic electric lighting, as its internal resistance is low and its constancy remarkable.

ANOTHER primary cell has the peculiarity that the element consumed in the liquid is carbon. In this cell—the invention of Profs. Bartoli and Papasogli—the electrodes are platinum, and a compacted mixture of retort coke and Ceylonese graphite. The exciting liquid is hypochlorite of soda. The electromotive force is, however, only ·2 of a volt at the most.

M. JABLOCHKOFF announces another battery of great scientific interest. A small rod of sodium weighing about 8 grammes is squeezed into contact with an amalgamated copper wire and flattened. It is wrapped in tissue paper and then damped with three wooden pegs against a plate of very porous carbon. This completes the element. The moisture of the air settles on the oxidised surface of the sodium. It works without any other liquid. The E.M.F. is 2·5 volts, but the resistance is as great as 25 ohms.

M. LAZARE WEILLER has shown that the phosphide of tin, drawn into wires, possesses a higher electric conductivity than platinum or iron.

M. EMILE REYNIER has made some very interesting experiments on the maxima and minima electromotive forces obtained from cells of one electrolyte. For this purpose he constructed two cells, one for determining the maxima and one for determining the minima electromotive forces. His maximum cell consists in giving the positive electrode as large a surface as possible—about 30 square decimetres—while the negative electrode consisted of a wire of 3 mm. diameter. The positive electrode was bent round